



## PHASE I ENVIRONMENTAL SITE ASSESSMENT



Bailey Power Plant  
450 North Patterson Avenue  
Winston-Salem, NC 27101

### **Prepared For:**

Wexford Science and Technology, LLC  
1090 King George Post Road  
Suite 606  
Edison, NJ 08837

April 17, 2014

Hillmann Project No: V3-8588

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**Your Property. Our Priority.**

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April 17, 2014

Mr. Chris Petersen  
Wexford Science and Technology, LLC  
1090 King George Post Road  
Suite 606  
Edison, NJ 08837

**RE: Phase I Environmental Site Assessment**  
Bailey Power Plant  
450 North Patterson Avenue  
Winston-Salem, NC 27101  
Hillmann Project No: V3-8588

Dear Mr. Petersen:

Hillmann Consulting, LLC, is pleased to provide the results of our Phase I Environmental Site Assessment of the above referenced property. This assessment was performed in accordance with the scope and limitations of ASTM Practice E 1527-13, which is the latest version of the E1527 standard published by the ASTM.

This report is for the exclusive use of the entities named on the front cover, its affiliates, designates and assignees, rating agencies, prospective bond holders and bond holders, and no other party shall have any right to rely on any service provided by Hillmann Consulting, LLC, without prior written consent.

We appreciate the opportunity to provide environmental due diligence services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact the Project Manager at 703-914-1135.

Sincerely,  
Hillmann Consulting, LLC

Larry Rockefeller, REM  
Sr. Project Manager

Christopher W. Baker  
Senior Vice President

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## **List of Abbreviations/Acronyms**

Hillmann may use the following abbreviations and acronyms for common terminology described in our report. Not all abbreviations or acronyms may be applicable to this report:

ACM	– Asbestos Containing Material
AST	– Aboveground Storage Tank
ASTM	– American Standard for Testing Materials
CERCLA	– Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	– Comprehensive Environmental Response Compensation and Liability Information System
CESQG	– Conditionally Exempt Small Quantity Generator
CORRACTS	– Corrective Action Sites
CREC	– Controlled Recognized Environmental Condition
DNPL	– Delisted National Priority List
ENG	– Engineering
ERNS	– Emergency Response Notification System
FOI	– Freedom of Information
FOIA	– Freedom of Information Act
FOIL	– Freedom of Information Letter
HVAC	– Heating Ventilation & Air Conditioning
HREC	– Historic Recognized Environmental Condition
IAQ	– Indoor Air Quality
IMD	– Incident Management Database
INST	– Institutional
ISRA	– Industrial Site Recovery Act
LBP	– Lead-Based Paint
LQG	– Large Quantity Generator
LTANK	– Leaking Storage Tank
MSDS	– Material Safety Data Sheet
NFA	– No Further Action
NFRAP	– No Further Remedial Actions Planned
NPDES	– National Pollutant Discharge Elimination System
NPL	– National Priority List
OPRA	– Open Public Records Act
RCRA	– Resource Conservation and Recovery Act
RCRIS	– Resource Conservation and Recovery Information System
REC	– Recognized Environmental Condition
SQG	– Small Quantity Generator
TSDF	– Treatment Storage and/or Disposal Facility
USEPA	– United States Environmental Protection Agency
UST	– Underground Storage Tank

## 1.0 EXECUTIVE SUMMARY

Hillmann Consulting, LLC (Hillmann), performed a Phase I Environmental Site Assessment (ESA) of the Bailey Power Plant located at 450 North Patterson Avenue, Winston-Salem, North Carolina (the Property). This assessment has been conducted utilizing generally accepted Phase I ESA industry standards in accordance with the ASTM Standard Practice E 1527-13 for Phase I Environmental Site Assessments.

### 1.1 Project Details Summary Table

A summary of the pertinent details of the project is provided below:

PROJECT SUMMARY TABLE					
<b>Name of Client</b>		Wexford Science and Technology			
<b>Client Project No.:</b>		None Provided			
<b>Client Contact:</b>		Mr. Christopher Petersen			
<b>Description of Project</b>		Phase I Environmental Site Assessment			
<b>Project Name:</b>		Bailey Power Plant			
<b>Street Address:</b>		450 North Patterson Avenue			
<b>City:</b>	Winston-Salem	<b>County:</b>	Forsyth	<b>State:</b>	North Carolina
<b>Tax ID/Parcel Number:</b>		6835-37-1583.00			
<b>Zoning Designation:</b>		CI			
<b>Approx. Property Area:</b>		2.96 acres			
<b>Approximate Building Area:</b>		Building 23-1– 10,000 ft <sup>2</sup> Building 23-2, and 23-2 Extension (Ext)– 93,000 ft <sup>2</sup> Building 23-12 and 23-13– 22,000 ft <sup>2</sup>			
<b>Year Built:</b>		Building 23-1; 1926-27 Building 23-2; 1948-50 Building 23-2 Ext-1964 Building 23-12-1956 Building 23-13- Circa 1917			
<b>General Type of Usage:</b>		Vacant Power Plant			
<b>Property Owner:</b>		WFIQ Holdings II LLC			
<b>Occupant(s):</b>		Vacant			
<b>Assessment Personnel:</b>		Mr. Larry Rockefeller			
<b>Property Contact:</b>		Ms. Jill Peters			
<b>Property Escort(s):</b>		Mr. Kurt Hemrick			
<b>Inspection Date:</b>		April 2, 2014			
<b>Weather Conditions:</b>		Clear, 85 degrees F			

## 1.2 Findings Summary Table

The following table summarizes the key findings of this assessment. This table, alone, does not constitute the complete assessment. The report must be reviewed in its entirety.

Assessment Section	No Sig. Concern	Potential Env Concern	REC	Recommended Follow-up	Rep. Ref.
User Provided Info	X				3.0
Data Gaps		Access was impeded into the elevator pit to observed evidence of hydraulic fluid release	N/A	Evaluate the elevator pit	2.5
Regulatory Review		The site was listed on the UST database for four (4) 25K-gallon fuel oil tanks	REC	Phase II Site Investigation	4.1
Historical Review		The site has operated in an industrial capacity since at least 1885	REC	Phase II Site Investigation	4.4
Site Use		Free diesel product was observed within Building 23-2	REC	Phase II Site Investigation	5.2
Adjoining Properties		Adjoining up-gradient property 445 North Chestnut has residual soil and groundwater contamination.	REC	Phase II Site Investigation	4.1.2 5.2.8
Hazardous Materials		"See Site Use"			5.3
Bulk Petroleum Storage		"See Site Use"			5.3
PCBs		Confirmed PCB contamination was reported on concrete surfaces where transformer equipment has resided	REC	Phase II Site Investigation	5.3
Waste / Discharges		Two site discharges are not currently connected to the municipal sewer line	N/A	Connect to municipal sewer line	5.3
Asbestos Containing Materials (ACM)		Building 23-12 and 23-13 contain identified ACM		Compliance with applicable regulations.	7.1
Lead Based Paint (LBP)		LBP may be present based on bldg. age		Compliance with applicable regulations	7.2
Radon	X				7.3
Mold	X				7.4
Wetlands	X				7.5

NA = Not Applicable, TBD = To Be Determined, UNK = Unknown,

### **1.3 General Description, Current and Historic Property Use**

The Property consists of a nearly rectangular shaped 2.96-acre parcel bordered on the north side East Fourth Street, west side of Patterson Avenue, east side of North Church Street and south side of East Fifth Street. The Property is located in an urban developed area characterized by a mix of redeveloped industrial buildings, and residential buildings; and various retail stores and businesses. The terrain of the Property appeared to be gently sloping from the west to east. No natural surface water bodies were noted at the Property, although it was reported an underground stream is piped through a large culvert on the north and east boundaries. Five building structures are present at the Property.

The Property is improved with five buildings. Building 23-1 located on the southeast portion of the Property is a two-story brick building consisting of approximately 10,000-ft<sup>2</sup> of space. Buildings 23-2 and 23-2 Extension, which are large multi-story brick buildings lie to the north of building 23-1 and south of East 5<sup>th</sup> Street. Building 23-13 is a three story brick building that resides on the southwest corner fronting East 4<sup>th</sup> Street and North Chestnut Street. To the north of building 23-13 lies building 23-12 which is a two-story brick building. Buildings 23-2 and 23-2 Extension are conjoined and consists of approximately 93,000-ft<sup>2</sup> of space. Buildings 23-12 and 23-13 are also conjoined and consist of approximately 22,000-ft<sup>2</sup> of space. Buildings 23-1, 23-2, and 23-2 Extension formerly were utilized for on-site power and steam generation for the adjacent campus. Building 23-12 formerly housed the site's emergency generator and chiller equipment that serviced nearby buildings. Building 23-13 formerly was used for R.J. Reynolds general storage. Two smokestacks, two coal silos and a railroad spur were also present. The remaining site is covered with concrete or gravel. Extensive on-site demolition occurred in 2011-2012 removing multiple former on-site buildings and structures.

The existing building 23-1 was built in 1925-26 and operated as a turbine and boiler house for the on-site power plant. Building 23-2 was constructed in 1948-50 and in 1964 the building expanded to the north (23-2 Extension). Both buildings house boilers and turbines for power generation. Building 23-12 was constructed in 1956 and housed the site's chiller operation. Prior to the development of the current building that reside on-site the Property was utilized as several tobacco manufacturing factories (R.J. Reynolds and Bailey Brothers) with buildings conducting manufacturing, warehousing, storage and drying types of activities. A cold storage and ice company occupied the southeast portion of the Property from the 1900s to late 1910s succeeding another tobacco factory, Brown Brothers. Building 23-13 was constructed in circa 1917 and was utilized as a wholesale meat company until 1963 when the building was purchased by R.J. Reynolds and utilized for storage purposes. Multiple large tanks located on the north end and southeast corner of the Property existed from the 1960s to 2010. Additional tanks were present of the Property dating back to at least 1885.

### **1.4 Findings, Opinions, and Conclusions**

#### **1.4.1 Notable Findings**

- The site had undergone extensive demolition during 2011-2012. Demolition consisted of removing select standing structures including the Fire Pump House (Bldg. 23-15), Bailey Power Station (Bldg. 23-18), Oil Storage Building (23-17), UPS Building (Bldg. 23-19),

and the Transformer Room (Bldg. 23-12). In addition cooling towers and ten above ground storage tanks were removed. Asbestos abatement of all interior buildings materials was conducted in Buildings 23-1, 23-2 and 23-2 Extension during this period. According to Mr. Hemrick prior to demolition activities all identified on-site hazardous materials, including sludges, residual waste, and chemicals were tested by S&ME and deposited according to applicable laws.

- It is documented that above ground storage tanks historically existed on the Property. According to a prior report issued by ERM ten (10) large tanks were removed from the site in 2011. The tanks ranged in size from 5,000 to 80,000 gallons. Seven tanks contained #2 fuel oil and the remaining tanks held sulfuric acid, sodium hydroxide, water (steam condensate) and demineralization waste water. During removal no releases were documented by ERM; stained soil was observed in the proximity of #2 fuel oil tanks on the southeast corner of the Property.
- According to the 2005 ERM Phase II report two separate fuel oil spills have occurred at the south end of the Bailey Power Plant parcel of Tract 3 near the fuel oil ASTs. Approximately 200 gallons of fuel was discharged from a horizontal AST to the unpaved ground surface in the late 1980s or early 1990s. A portion of this fuel flowed into the nearby stormwater sewer system as well as a nearby creek. An unknown volume of fuel oil was released from an overhead product line circa 2001 and impacted shallow soil in this area. Two to three truckloads of petroleum- affected soil were reportedly excavated from this area following the leaking pipe incident for off-site disposal.
- The Property was listed on the UST database related to the presence of four (4) 25,000 gallon heating oil tanks originally installed in 1978. Three tanks were removed in 1988 and one was removed in 1993. The tanks were reported to be single walled and unregulated. All tanks listings have been assigned a status of "permanent closed".
- According to the 2005 ERM Phase II report two soil samples and two ground water samples were collected in the vicinity of aboveground storage tank (AST) systems utilized to store heating oil at the south end of the Bailey Power Plant parcel of Tract 3A. These samples were collected to evaluate subsurface conditions near these AST systems. Diesel-range TPH was detected in the both soil samples at 3,100 mg/kg and 2,600 mg/kg, respectively. Benzene was the only VOC that was detected in groundwater above the water standard. No VOC's were detected in a down-gradient sample across Patterson Avenue to the east. It was concluded the extent of petroleum affected groundwater is limited to the immediate vicinity of the heating oil releases near the ASTs. Based on the presence of subsurface contamination vapor intrusion issues impacting the site buildings are likely.
- During a 1990 Environmental Evaluation by Westinghouse Environmental and Geotechnical Services two wells were installed at the site. The only target constituent identified in groundwater above the regulatory state standard was 1,2-dichloroethane a product of solvent degradation. It was reported part washing had occurred in the basement level in the north end of Building 23-2 Extension; likely related to the elevated

level of 1,2-dichlorethane. Based on the presence of subsurface contamination vapor intrusion issues impacting the site buildings are likely.

- It was reported an unnamed stream runs through a large culvert along the northern and eastern sides of the site, and discharges to the southeast across North Patterson Avenue. There are twenty-one (21) discharge points to the stream from the subject property and vicinity. Discharges to the culvert from the subject site formerly included several potential contaminant sources including coal seepage, demineralization wastewater, water treatment chemicals, and petroleum products released to floor drains. All but two of the catch basins have been re-routed to the municipal sewer system.
- Standing hydraulic fluid was observed in a secondary containment below the hydraulic elevator equipment in Building 23-13. The elevator was inoperable therefore access to the elevator pit was not feasible.
- Pooled diesel fuel and associated strong petroleum odor was observed on the roof and within a small storage room located in the southwest corner of the basement of Building 23-2. In addition diesel appeared to be migrating down the east side of the storage room wall. A floor drain was located in the center of pooled diesel within the storage room in addition a floor trench was in close proximity to the east storage room wall where diesel product appeared to be migrating from the roof. According to Mr. Hemrick an above ground day tank existed on the roof of the storage building. The tank was reported removed in 2011-2012 during limited site demolition.
- A 2008 limited Phase II report by S&ME states airborne mercury testing was conducted in Building 23-2 where mercury devices were reported to exist. Levels above regulatory standards were reported in four areas. A 2008 mercury clean-up report by A&D Environmental indicates mercury clean-up was performed from July 21 through 25, 2008 within designated areas outlined by S&ME, Inc. Elemental mercury (using mercury vacuums), sludge and solids within several floor drains and contaminated debris were removed and contained in lined 55 gallon drums. During clean-up a mercury vapor analyzer was used to monitor the atmosphere within the work zone and guide the clean-up activities.
- A 2008 limited Phase II report by S&ME states PCB sampling in Building 23-1 and the northwest corner of the Property where PCB containing transformers historically were located. Thirteen of thirty-four surface samples collected on stained and unstained surfaces of transformer structures, adjacent to transformers or adjacent to floor drains showed detectable PCB levels. Based on the sample results S&ME determined an additional assessment is warranted to determine the extent of the PCB impacts. Hillmann was not provided documentation of an additional assessment.
- *DeMinimus* stains were observed within Building 23-2 and 23-2 Extension. The stains appeared to be from historical use of the site. No stains were in close proximity to floor drains.

- Hillmann obtained a final copy of the North Carolina Brownfields Agreement for the PTRP property. The Property is included within this agreement. The Brownfields Agreement identifies the site as an approximately 49.02 acre property located in the areas south of Martin Luther King Jr. Drive, north of Third Street, west of U. S. Highway 52 and east of North Main Street. The Brownfields property, with the exception of approximately 0.12 acres, has been owned by RJ Reynolds Tobacco Company for the manufacturing of cigarettes. The Brownfields Agreement identifies soil and groundwater contamination throughout the site. Land use limitations for the entire site including the Property are associated with the Brownfields Agreement. Hillmann understands that the prospective developer intends to redevelop the Brownfield Property with bio-technology research facilities, offices, retail outlets, public open areas, high-density residences, performance/concert halls, hotels, community centers, swimming pools, parking and schools. The Brownfields Agreement should be referenced for all specific land use restrictions.
- The RJR Magnolia Parking Deck (Incident No. 85875), located in the block adjacent to the west of the site across Chestnut Street, is listed on the IMD database and is topographically up gradient from the subject property. Petroleum soil and groundwater contamination was identified during the construction of the parking deck, and estimated to extend to near Chestnut Street. This incident remains open and is in close proximity to the site. There is the potential the petroleum contamination has migrated to the western portion of the subject site.
- Two northeast adjoining properties were occupied as gasoline stations from approximately 1950s until 1960s. Hillmann notes that a 2006 Phase II report by ERM included collection of soil and groundwater samples on the southern boundary of Building 91 representing the former gasoline station located north of East Fourth St. No gasoline-diesel range TPH, VOC's or metals were detected. No further action was warranted based on the sample results. In addition, building 91 located north of the former gas station historically conducted chrome plating. Chromium was not detected in a representative groundwater sample. Reference to the former gas station located south of East Fourth Street (former Allegacy Credit Union) located northeast of the Property was associated with groundwater samples collected by ERM in conjunction with building 60 located southeast of the former gasoline station. Groundwater samples collected were below regulatory standards.

#### **1.4.2 Non-ASTM Scope Considerations**

Hillmann has also performed cursory evaluations for ASTM "Non-Scope" items, such as asbestos-containing materials (ACM), lead-based paint, radon, mold and wetlands. Our observations and research did not identify any notable concerns, except for the following:

- Considering the dates of construction of the buildings, asbestos containing materials (ACM) may be present. Suspected ACM noted during a cursory visual screening included pipe and fitting insulation within Building 23-12 and 23-13. Suspect roofing material and window glazing/caulking was observed with all structures. Additional quantities of ACM may exist in enclosed areas or areas not accessed during the assessment. Hillmann reviewed an

Asbestos Survey Data Sheet issued by S&ME, Inc. related to an asbestos survey conducted in November 2007. The survey data sheet covered all current buildings and building that have been demolished since the survey was conducted. Various types and quantities of asbestos containing materials were identified including but not limited to roofing materials, pipe insulation, window glazing, mastics, etc. According to Mr. Velazquez of ERM all asbestos had been removed from Building 23-1, 23-2 and 23-2 Extension during demolition activities in 2011-2012. Mr. Velazquez stated that asbestos abatement within buildings 23-12 and 23-13 were not included in the scope of work.

- Considering the dates of construction of the buildings, lead-based paint may be present at the Property. In general, interior painted surfaces within the space were noted to be in fair to poor condition.

#### **1.4.3 Significant Data Gaps**

No data gaps that significantly impacted Hillmann's ability to identify RECs in connection with the Property have been identified, except for the following:

- The smoke stacks, former coal silos and elevator pit in building 23-13 could not accessed during the site assessment; it is possible that additional RECs could be discovered upon a full inspection of these areas.

#### **1.4.4 Recognized Environmental Conditions**

Hillmann has performed a Phase I Environmental Site Assessment in accordance with the scope and limitations of ASTM Practice E 1527-13 of the Property as described in Section 2 of this report. Any additions to, exceptions to, or deletions from this practice are also described in Section 2 of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the Property, except for the following:

*Recognized Environmental Conditions (RECs):*

- The Property has a history of various industrial operations, including tobacco factories, coal fired power and steam station, chiller plant, cold storage and ice house dating to at least 1885. Numerous large above and below ground storage tanks resided on site during the years of operation. The historic site uses and presence of UST's, and AST's with reported releases are considered to be a REC in connection with the Property.
- The elevated levels of diesel range TPH identified in soil samples in proximity to historical large fuel oil tanks on the southeast portion of the site by the 2006 ERM Phase II investigation are considered to be a REC's in connection with the Property.
- Possible vapor intrusion resulting from subsurface contamination is considered to be a REC's in connection with the Property.

- The adjoining RJR Magnolia parking deck 445 North Chestnut Street is considered to be a REC in connection with the Property due to the potential for migration of subsurface contamination beneath the west end of the Property.
- The presence of pooling diesel fuel in the southwest corner of the basement of building 23-2 is considered to be REC in connection with the Property.
- The presence of detectable PCB concentration on concrete surfaces is considered to be REC in connection with the Property.

*Controlled Recognized Environmental Conditions (CRECs):*

- No evidence of any CRECs in connection with the Property was identified.

*Historical Recognized Environmental Conditions (HRECs):*

- No evidence of any HRECs in connection with the Property was identified.

## **1.5 Recommendations**

### **1.5.1 Recognized Environmental Conditions**

Based on the findings of the Phase I Environmental Site Assessment, no further investigation is recommended at this time to address identified or suspected RECs, except for the following:

- A Phase II Site Investigation is recommended to delineate the identified RECs related to historical site usage, historical releases associated with former petroleum storage tanks and documented elevated levels of diesel range TPH.
- Immediate clean-up and a Phase II Site Investigation is recommended to further assess the identified RECs related to standing diesel fuel observed during the assessment.
- A Phase II Site Inspection is recommended to further delineate documented PCB contamination.
- The Brownfields Agreement should be referenced for all specific land use restrictions.
- The current Brownfield Agreement's section addressing vapor intrusion mitigation may not be sufficient to address on-site conditions. Therefore, additional engineering controls regarding mitigation of vapor intrusion may be warranted.
- A Phase II Site Investigation is recommended to delineate the identified RECs related to the adjoining up-gradient property at 445 North Chestnut.

### **1.5.2 Non-ASTM Considerations**

The following should be considered with regard to further investigation or management of Non-ASTM considerations addressed by this report:

- Compliance with all applicable rules and regulations pertaining to asbestos is recommended.
- Compliance with all applicable rules and regulations pertaining to lead based paint is recommended.

## 2.0 INTRODUCTION

### 2.1 Purpose and Scope

This assessment was conducted utilizing generally accepted Phase I ESA industry standards in accordance with the ASTM Standard Practice E 1527-13. The ASTM describes these methodologies as representing good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner or bona fide prospective purchaser limitations on CERCLA liability (hereinafter, the “landowner liability protections,” or “LLPs”): that is, the practice that constitutes all appropriate inquiries into the previous ownership and uses the property consistent with good commercial and customary practice as defined at 42 U.S.C. §9601(35) (B). The primary goal of the processes established by ASTM E1527-13 is to identify *recognized environmental conditions* in connection with the Property.

The term *recognized environmental condition (REC)* is defined by the ASTM as the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to a release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

The ASTM has also defined the terms *historical recognized environmental conditions* and *controlled recognized environmental conditions* as two additional types of RECs. The term *historical recognized environmental condition (HREC)* is defined as a past release of any hazardous substances or petroleum products that has occurred in connection with the Property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the Property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls or engineering controls).

The term *controlled recognized environmental condition (CREC)* is defined as a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

Conditions determined to be “*de minimis conditions*” are not considered to be RECs nor CRECs. *De minimis condition* is defined by the ASTM as a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.”

The chief components of this assessment are described as follows:

- A non-invasive visual reconnaissance of the Property and adjoining properties in accordance with ASTM guidelines for evidence of RECs.
- Interviews of past and present owners and occupants and state and local government officials, seeking information related to the potential presence of RECs at the Property.
- A review of standard physical record sources for available topographic, geologic and groundwater data.
- Review of standard historic record sources, such as fire insurance maps, city directories, aerial photographs, prior reports and interviews, etc., to determine prior uses of the Property from the present, back to the Property's first developed use, or back to 1940, whichever is earlier.
- Review of standard environmental record sources including federal and state environmental databases, and additional environmental record sources, to identify potential regulatory concerns with the Property, adjoining properties and properties located within the surrounding area.

These methodologies are described as representing good commercial and customary practice for conducting an Environmental Site Assessment of a property for the purpose of identifying recognized environmental conditions.

### **2.1.1 Non-ASTM Scope Considerations**

In accordance with our contract agreement, Hillmann may have addressed the following potential environmental concerns that are outside of the requirements of the ASTM E1527-13 standard:

Asbestos-Containing Materials (ACM): A cursory visual inspection for the presence of suspect ACM within the accessed areas of buildings on the Property.

Lead-Based Paint (LBP): A cursory visual inspection of the condition of painted surfaces in the accessed areas of buildings on the Property.

USEPA Designated Radon Potential: Review of general non-site specific data published by the USEPA regarding the potential for elevated indoor levels of radon gas to occur in the area of the Property.

Mold: A cursory visual inspection within the accessed areas of buildings on the Property for evidence of systemic microbial problems, including visible mold growth, water damaged building materials or musty odors.

Wetlands: A cursory review of data published by the US Fish and Wildlife Service regarding the presence or absence of mapped wetlands on the Property. The US Fish and Wildlife Service wetlands data is typically provided to Hillmann by Environmental Data Resources, Inc. (EDR).

## **2.2 Property Location/Legal Description**

The Property consists of one nearly rectangular shaped 2.96-acre parcel located at 450 North Patterson Avenue. According to the county tax appraiser the parcel identification number is 6835-37-1583.00. The Property is bounded by East 4<sup>th</sup> Street to the south, East 5<sup>th</sup> Street to the North, North Patterson Avenue to the east, and North Chestnut Street to the west. The latitude and longitude is approximately North 36.0996 degrees, West 80.2411 degrees.

## **2.3 Significant Assumptions**

The following significant assumptions are made:

- Hillmann has assumed that the information obtained from EDR during the course of this assessment is an accurate and complete representative summary of the information contained in the referenced regulatory agency records, except when such information is obviously contradicted by other data.
- Hillmann has assumed that the information used to prepare this assessment that was obtained from ostensibly knowledgeable individuals, regulatory agency representatives or other secondary sources was an accurate and complete representative summary of the information possessed by those individuals, representatives or sources.
- Hillmann has assumed that the site operations at the time of the site visit reflect typical site conditions relative to potential environmental conditions and that no concealment of environmental conditions or releases by site owners or occupants has occurred. Likewise, Hillmann has also assumed that no areas of the Property with potential environmental concerns or RECs were concealed or otherwise not made known to us, intentionally or unknowingly, by the Property owners/occupants and/or site escort at the time of the site visit.
- For the purpose of estimating the approximate direction of groundwater flow in the absence of site specific groundwater data, unless indicated otherwise, Hillmann has assumed that the gradient of groundwater flow follows the surface topography of the Property and immediate surrounding area.

## **2.4 Limitations and Exceptions**

### **2.4.1 Limiting Conditions**

Hillmann was unaware of any significant limiting conditions at the time of the assessment, except for the following:

- The smoke stacks, former coal silos and elevator pit in building 23-13 could not accessed during the site assessment.

### **2.4.2 Other Exceptions or Deletions:**

No other exceptions or deletions from the ASTM Standard E 1527-13 are reported.

## 2.5 Data Gaps

A *data gap* is defined by the ASTM as a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. A data gap is only significant if other information and/or professional experience raises reasonable concerns involving the data gap and the ability to determine the presence or absence of recognized environmental conditions.

<b>Data Gap:</b>	<b>Significant (Yes/No)?</b>	<b>Discussion</b>
Site use was not documented back to date of first developed use.	No	In Hillmann's professional opinion, it is unlikely that additional investigation would result in any significant changes to the findings of this assessment.
Response to agency records requests not received as of date of report.	No	Any additional information indicative of a REC will be forwarded upon receipt.
Inaccessible areas, as described in Section 5.1.1.	Yes	It is possible that additional RECs could be discovered upon a full inspection of these areas.

## 2.6 Special Terms and Conditions

Hillmann has prepared this Phase I Environmental Site Assessment using reasonable efforts in each phase of its work to identify recognized environmental conditions associated with hazardous substances, wastes and petroleum products at the Property. The methodology of this Phase I Environmental Site Assessment was consistent with the ASTM Standard Practice for E 1527-13. Findings within this report are based on information collected from observations made on the day of the site visit and from reasonably ascertainable information obtained from governing public agencies and private sources.

This report is not definitive and should not be assumed to be a complete or specific definition of the conditions above or below grade. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation or other construction purposes. Hillmann makes no representation or warranty that the past or current operations at the Property are, or have been, in compliance with all applicable federal, state and local laws, regulations and codes.

Findings, conclusions and recommendations presented in this report are based on our visual observations of the Property, the research findings reasonably obtained, information provided by the Client, and/or a review of readily available and supplied drawings and documents. Hillmann relies completely on the information, whether written, graphic or verbal, provided by the subject Property contact(s) or as shown on any documents reviewed or received from the subject Property contact, owner or agent, or municipal source, and assumes that information to be true and correct. Although there may have been some degree of overlap in the information provided by these various sources, Hillmann did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this assessment.

Regardless of the findings stated in this report, Hillmann is not responsible for consequences or conditions arising from facts that were concealed, withheld or not fully disclosed at the time the assessment was conducted.

This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

The regulatory database report provided is based on an evaluation of the data collected and compiled by a contracted data research company. The report focuses on the Property and neighboring properties that could impact the Property. Neighboring properties listed in governmental environmental records are identified within specific search distances. The search distance varies depending upon the particular government record being checked. The regulatory research is designed to meet the requirements of ASTM Standard E 1527-13. The information provided in the regulatory database report is assumed to be correct and complete.

Subsurface conditions may differ from the conditions implied by the surface observations and can only be reliably evaluated through intrusive techniques.

Reasonable efforts have been made during this assessment to identify aboveground and underground storage tanks and ancillary equipment. "Reasonable efforts" are limited to information gained from visual observation of largely unobstructed areas, recorded database information held in public record and available information gathered from interviews. Such methods may not identify subsurface equipment that may have been hidden from view due to parked automobiles and other vehicles, snow cover, vegetative growth, pavement, construction or debris pile storage or incorrect information from sources.

Unless otherwise specified in Section 2.1 of this report, an ASTM Vapor Encroachment Screening of the Property utilizing the information collected during the course of this assessment is excluded from the scope of service for this assessment.

Hillmann is not a professional title insurance firm and makes no guarantee, explicit or implied, that the records which were reviewed represent a comprehensive or precise delineation of past Property ownership or tenancy for legal purposes.

### 3.0 USER PROVIDED INFORMATION

#### 3.1 Prior Environmental Reports/Documentation

The following prior environmental reports or documentation were obtained and reviewed:

Above Ground Storage Tank Closures-Former Bailey Power Plant, Piedmont Triad Research Park Northern District, Winston-Salem, North Carolina; prepared by ERM NC, Inc., dated December 14, 2011. The report indicates ten (10) above ground storage tanks on the Property were removed in 2011. No releases were reported during the tank removal. Soil staining was reported in the vicinity of the four #2 fuel oil tanks in the southeast corner of the Property. No soil staining was observed by ERM associated with the remaining tanks. No follow up investigation was proposed noted historical soil contamination existing on the Property.

Summary of Mercury Clean-up Services-R.J. Reynolds Tobacco Company-Bailey Power Plant, 4<sup>th</sup> Street and Patterson Avenue, Winston-Salem, North Carolina; prepared by A&D Environmental, dated October 8, 2008. The report states A&D environment performed mercury clean-up from July 21 through 25, 2008 within designated areas outlined by S&ME, Inc. Elemental mercury (using mercury vacuums), sludge and solids within several floor drains and contaminated debris were removed and contained in lined 55 gallon drums. During clean-up a mercury vapor analyzer was used to monitor the atmosphere within the work zone and guide the clean-up activities.

Limited Phase II Screening/Sampling for Surface Contamination-RJR Bailey Power Plant, Corner Fourth Street and Patterson Avenue, Winston-Salem, North Carolina; prepared by S&ME, Inc. and dated July 7, 2008. S&ME conducted PCB sampling in Building 23-1 and the northwest corner of the Property where PCB containing transformers historically were located. Thirteen of Thirty-four surface samples collected on stained and unstained surfaces of transformer structures, adjacent to transformers or adjacent to floor drains shown detectable PCB levels. Based on the sample results S&ME determined an additional assessment is warranted to determine the extent of the PCB impacts. In addition, S&ME conducted airborne mercury testing in Building 23-2 where mercury devices were reported to currently or formerly exist. Levels above regulatory standards were reported in four areas.

Phase I Environmental Site Assessment-Bailey Power Plant, Fourth Street and Patterson Avenue, Winston-Salem, North Carolina; prepared by S&ME, Inc. and dated January 14, 2008. The report concluded the following with the regard to RECs in connection with the Property:

*“The subject site is part of the Piedmont Triad Research Park Brownfields site. The Brownfields Letter of Intent summarized known potential environmental conditions of the proposed PTRP properties. Potential environmental conditions listed for the subject site included: the storage of significant quantities of coal; the presence of mercury containing devices; chemical usage including water treatment, cleaning and maintenance chemicals; the historic use of large fuel storage ASTs, with a documented release; the site listed as having had four USTs, with an associated LUST Incident; historic hazardous waste generation; and unspecified environmental conditions due to facility being located in a historically industrial area. Two previous fuel oil releases, from the AST systems located in southern portion of the site, were reported by RJR personnel. Based on previous reports in the Brownfields file, limited soil and groundwater sampling on the southeast portion of the site has confirmed petroleum contamination near the fuel oil ASTs. The extent of the contamination has not been delineated. In addition to the fuel oil ASTs,*

other potential areas of petroleum contamination were identified at the site. Staining was observed on the gravel around the “dump tank” pumps, in the oil pump house and around day tanks and piping in the building. Below grade piping is present between the “dump tank” and the storage tanks, and near the oil pump house. Soil or groundwater sampling has not been performed to confirm if contamination exist in these areas. The remaining potential environmental conditions listed in the Brownfields Letter of Intent are discussed below.

A previous Environmental Evaluation was performed in 1989-1990 by Westinghouse Environmental and Geotechnical Services, Inc. for several RJR facilities, including the subject site. Two wells were installed on the Bailey Power Plant property as part of this assessment, one near the northeast corner of the site (MW- 29) and one located to the east of Building 23-1 (MW-31). The only target constituent identified in groundwater samples collected from these wells in 1990 was 1,2-dichloroethane, which was detected at 45 micrograms per liter (µg/l) in MW-31. The analytical method was not specified, but it included several volatile organic compounds. The report indicated that the state standard for 1,2-dichloroethane was 0.38 µg/l. No source for 1,2-dichloroethane was identified, and no record of additional assessment or remediation of this area was found. 1,2-dichloroethane is a degradation product of chlorinated solvents, and MW-31 was located generally downgradient from the reported former location of parts washers in Building 23-2 Extension, indicating a potential past release of solvents.

RJ Reynolds Tobacco Co. – Bldg. 23 (EPA ID No. NCD 986191609), located on the eastern portion of the subject site, was listed on the RCRA database as a small quantity generator of hazardous waste. RJR personnel stated that parts washers were formerly used in the basement level in the north end of the turbine room in Building 23-2 Extension. Mr. Danny Harvey with RJR stated that the washers may have used 1,1,1-trichloroethylene based solvents in the past, but more recently used varsol solvents. He indicated that the solvents were stored in drums in the oil storage building nearby to the south. No RCRA violations were identified for the Building 23 facility. No direct evidence of a release was identified in the reported parts washer location or storage area. However, chlorinated solvents used in parts washers may not leave visual evidence of a release, and they can pass through concrete into the soil below. Chronic small releases commonly occur at parts washer stations during usage and fluid transfer. There is the potential that soil or groundwater solvent contamination exists beneath the turbine room or the oil storage building.

RJ Reynolds Tobacco Co. (Bailey Power Plant) is listed as a registered AST facility (Facility ID No. 34041). No releases were identified by NCDENR in their registered AST database. No details are provided in the registered AST database regarding tank size, contents, etc. Confirmed petroleum soil and groundwater contamination is present near the fuel ASTs on the southeastern portion of the site as discussed above. Staining was observed on the gravel around the “dump tank” pumps and in the oil pump house. Below grade piping is present between the “dump tank” and the storage tanks, and near the oil pump house. Additional areas of soil or groundwater contamination may exist in these areas.

An unnamed stream runs through a large culvert along the northern and eastern sides of the site, and discharges to the southeast across North Patterson Avenue. A sketch of the culvert provided by RJR identifies 21 discharge points to the stream from the subject property and vicinity. Based on the RJR sketch, discharges to the culvert from the subject site formerly included several potential contaminant sources including coal seepage, demineralization wastewater, water treatment chemicals, and petroleum products released to floor drains. According to Mr. Harvey, all but two of the catch basins have been re-routed to the municipal sewer system. Off-site discharges included Building 91 engine shop drains. Building 91 was also a former RCRA hazardous waste generator and treatment facility. There is the potential that residual contaminants may exist along the discharges or the stream culvert.

The subject site has been used for various industrial purposes since at least 1885. Prior to the development of the Bailey Power Plant facility starting in 1926, past industrial uses identified in the reviewed Sanborn maps included several tobacco storage and processing facilities, a cold storage and ice company, and a wholesale meat facility. Two boilers and an oil house were formerly located on the central portion of the site. Additional boilers and refrigeration equipment were formerly located on the southern portion of the site. The tobacco storage building formerly located on the northwestern portion of the site was labeled as containing 200 barrels

of alcohol. There is the potential that the soil or groundwater is impacted from the extensive historical industrial uses of the site.

The basement levels of Buildings 23-2, 23-2 Extension and 23-18 contain several ASTs, pumps and piping associated with their demineralization system, including brine, sulfuric acid and sodium hydroxide ASTs. White powders were observed on most of the ASTs and dark staining was observed beneath the pumps and equipment. Coal pulverizers and lubricant tanks containing residual fluids are also located in these buildings. Drip pans with standing oils and areas of stained concrete were observed beneath the pulverizers. One of the pulverizers in Building 23-18 was partially dismantled and had standing oil in the base and apparent leakage leading from the side of the pulverizer to a nearby floor drain. Floor trenches and sumps containing oily fluids and sludges were also observed in Buildings 23-2, 23-2 Extension and 23-18. Dark staining was observed in several areas of these buildings on the floor and around the trenches and floor drains. Visual evidence of a recent release of the pulverizer lubricant to the floor and nearby floor drain was observed in Building 23-18, and staining was observed in several areas of the boiler buildings. Some of the areas of staining may be localized and represent de minimis conditions. Residual lubricants are present in equipment throughout these buildings, and residual water treatment chemicals may also be present in tanks or piping. Standing oily fluids and sludges were also observed in Buildings 23-2, 23-2 Extension and 23-18. Mr. Harvey stated that the trenches in Buildings 23-2 and 23-2 Extension are part of the wet ash system that discharges directly to the gravel area and catch basin outside. Due to the likelihood that chronic releases have occurred in these areas for decades, and the presence of standing oily fluids and sludges, there is the potential that these lubricants and water treatment chemicals have impacted the soil or groundwater beneath or around these buildings.

Three 55-gallon drums were observed outside of Building 23-2, one empty and two containing fluids. Dark staining was observed on the drums and on the gravel around them. Mr. Harvey believes that these two drums contain waste oil. Staining was observed around the drums, indicating that the soils in these areas are likely impacted by petroleum constituents and/or metals.

Three large transformers are located outside along the northeast corner of Building 23-1. Areas of dark staining were observed on the transformers and on the concrete around them. Two transformers and electrical equipment remain in the northern portion of Building 23-1 turbine room, and another transformer is located in a fenced area outside this room on the east side of the building. A concrete transformer pad with a sump area with metal grating is located near the northeast corner of the site. Several smaller, mostly dry-type transformers were also observed inside the site buildings. According to Mr. Hill with RJR, the large primary transformers at the site are non-PCB transformers, and he was not aware of any releases from transformers at the subject site. However, he indicated that PCB containing transformers were formerly located at Building 23-1 and near the northeast corner of the site. Staining was observed on and beneath the transformers at Building 23-1. The site has likely had several transformers associated with the power plant since Building 23-1 was constructed in 1926. Also, smaller secondary transformers with PCB containing coolant oil may be present in the building. There is the potential that past releases of PCB containing transformer oil has occurred in these areas.

One hydraulic-cylinder type elevator is located in Building 23-13. The remaining elevators at the site were reported to be cable-driven with electric motors. The base of the hydraulic elevator shaft was not accessible. Hydraulic elevators typically have hydraulic pistons extending below grade. There is the potential that chronic small releases of hydraulic fluids have impacted the soil or groundwater in this area.

A large area of the western portion of the site has been used for coal storage for several decades, with two elevated railroad spurs used for coal, fuel, sulfuric acid and sodium hydroxide delivery. The former coal storage yard is currently paved with concrete. An area of standing water was observed at the northern end of the former coal storage yard. Past seepage and runoff from the coal storage yard may have impacted the soil or groundwater with water treatment chemicals, petroleum compounds or poly-cyclic aromatic hydrocarbons (PAHs).

*The southern portion of the site was used for ash storage in large silos and has a former wet ash pit that is currently used for storage of secondary containment storm water discharge. Past seepage and runoff from ash storage may have also impacted the soil or groundwater with metals, petroleum compounds or poly-cyclic aromatic hydrocarbons (PAHs)."*

The following Recognized Environmental Conditions were noted related to adjoining properties:

*"The RJR Magnolia Parking Deck (Incident No. 85875), located in the block adjacent to the west of the site across Chestnut Street, is listed on the IMD database and is topographically up gradient from the subject property. Petroleum soil and groundwater contamination was identified at this site during the construction of the parking deck, and estimated to extend to near Chestnut Street. This incident remains open and is in close proximity to the site. There is the potential the petroleum contamination has migrated to the western portion of the subject site."*

Asbestos Survey Data Sheet issued by S&ME, Inc. related to an asbestos survey conducted in November 2007. The survey data sheet covered all current buildings and building that have been demolished since the survey was conducted. Various types and quantities of asbestos containing materials were identified including but not limited to roofing materials, pipe insulation, window glazing, mastics, etc.

Brownfields Phase II Soil and Groundwater Assessment, Piedmont triad Research Park-Northern District, Winston-Salem, NC; prepared by ERM NC, PC, May, 2006.

The following Recognized Environmental Conditions were noted directly related to the Subject Property:

*"Two soil samples and two ground water samples were collected in the vicinity of aboveground storage tank (AST) systems utilized to store heating oil at the south end of the Bailey Power Plant parcel of Tract 3A. These samples were collected to evaluate subsurface conditions near these AST systems. Soil samples were collected from borings SB-9 and TWM-20 for diesel-range TPH analyses. Groundwater samples were collected from temporary monitor wells TMW-20 and TMW-21 for VOC and SVOC analyses.*

*Diesel-range TPH was detected in the SB-9 and TWM-20 soil samples at 3,100 mg/kg and 2,600 mg/kg, respectively. The SB-9 soil sample was collected at approximately 12 feet BGS and the TMW-20 soil sample was collected at 5.0 feet BGS. The source of the diesel-range TPH in these soil samples appears to be heating oil spills from the AST systems in this vicinity.*

*Benzene was the only VOC detected above the ground water standard in the TMW-20 (2.9 ug/L) but below the standard in TMW-21. The depth to water was approximately 5.7 and 18.7 feet below ground surface at TMW-20 and TMW-21, respectively. It should be noted that, based on the shallow depth to ground water measurements recorded in TMW-20, the ground water observed at this location may represent "perched" conditions.*

*No significant concentrations of VOCs or SVOCs were detected in the ground water sample collected from TMW-16 located across Patterson Avenue to the east and topographically down gradient of the heating oil ASTs. Chloroform was reported in the TMW-16 sample at a concentration of 1.4 ug/l which is below the North Carolina Ground Water Standard for this compound of 70 ug/l. No other VOCs or SVOCs were reported in the TMW-16 ground water sample. Based on these data, the extent of petroleum-affected ground water is limited to the immediate vicinity of the heating oil releases near the ASTs."*

The following Recognized Environmental Conditions were noted related to adjoining properties:

*“No further investigation or remediation of soil or groundwater quality in association with the former petroleum retail facility at the south portion of Building 91 parcel is warranted. Additionally, the absence of chromium in the groundwater samples does not indicate the need for further ground water investigation in association with the former chrome plating operation in Building 91.”*

*“Ground water samples were collected from four temporary monitor wells installed on the Building 56 (Tract 3) parcel to evaluate current ground water quality conditions. Previous ground water samples collected by RJRT in the vicinity of Building 56 indicated elevated concentrations of petroleum hydrocarbons in ground water. The presence of the elevated concentrations of petroleum hydrocarbons in the ground water samples from TMW-15 and TMW-17 is attributed to leaks from former heating oil USTs located immediately east of Building 56.”*

R.J. Reynolds Properties Phase I Environmental Site Assessment, Various Downtown Parcels, Winston-Salem, NC; prepared by ERM NC, PC, October 2005.

The following Recognized Environmental Conditions were noted directly related to the Subject Property:

*“Two separate fuel oil spills have occurred at the south end of the Bailey Power Plant parcel of Tract 3 near the fuel oil ASTs. Approximately 200 gallons of fuel was discharged from a horizontal AST to the unpaved ground surface in the late 1980s or early 1990s. A portion of this fuel flowed into the nearby stormwater sewer system as well as a nearby creek. An unknown volume of fuel oil was released from an overhead product line circa 2001 and impacted shallow soil in this area. Two to three truckloads of petroleum- affected soil were reportedly excavated from this area following the leaking pipe incident for off-site disposal. No additional information regarding the investigation or cleanup of either of these petroleum spills was available from RJRT and it is unknown if either of these petroleum releases were reported to NCDENR. No documentation regarding further investigation or remediation of either of these fuel spills was available for review. It is unknown if NCDENR was alerted regarding either of these fuel spills. It is possible that petroleum-affected soil or ground water may be present in this area as a result of these fuel spills.”*

The following Recognized Environmental Conditions were noted related to adjoining properties:

*“Petroleum-contaminated ground water was detected at the west side of the Building 60 parcel of the subject property in 1989. This ground water contamination has been attributed to leaking petroleum USTs on RJRT’s Power Plant property located across Vine Street (Building 56) to the west of the Building 60 parcel of the subject property. No additional investigation or ground water remediation has been required by NCDENR to date although the ground water incident remains active with the State.”*

### **3.2 Title Records/Environmental Liens/Activity and Use Limitations**

Hillmann reviewed an environmental lien search report for the Property conducted by Environmental Data Resources, Inc. (EDR). The report identifies the current owner is WFIQ Holdings II, LLC, formerly PTRP Holdings II, LLC. No information regarding environmental liens or activity and use limitations for the Property was listed with the report.

Hillmann obtained the final NCDENR Brownfields Agreement for an approximate 49.02 acre tract in Winston-Salem that includes the Property. A description of the agreement is included in Section 3.1 of this report. Land use limitations for the Property are associated with the Brownfields Agreement.

### **3.3 Specialized Knowledge or Experience**

No indication of any specialized knowledge or experience regarding the Property was reported to Hillmann by the Client.

### **3.4 Commonly Known or Reasonably Ascertainable Information**

No commonly known or specialized knowledge of the Property was reported to Hillmann by the Client.

### **3.5 Property Value Reduction due to Environmental Conditions**

No information was provided by the Client to Hillmann regarding a reduction of the Property value due to environmental problems or conditions.

### **3.6 Reason for Performing Phase I ESA**

It is Hillmann's understanding that the Phase I ESA was being performed in consideration of a pending real estate transaction involving the Property.

## 4.0 RECORDS REVIEW

### 4.1 Standard Environmental Record Sources

An EDR Radius Map report was obtained from Environmental Data Resources of Milford, CT. The EDR Radius Map Report provided a search of standard environmental record sources in general accordance with the requirements of the ASTM E1527-13. Hillmann has reviewed the EDR Radius Map report and a summary of findings is presented in the following tables and report sections. Hillmann also reviewed the list of unmapped sites (referred to by EDR as “Orphan List” sites). Unmapped sites identified as falling within an applicable specific search distance or warranting discussion in the report, if any, have been included in the information presented below. Detailed descriptions of the meaning and significance of the regulatory databases can be found in the EDR Radius Map Report in Appendix E.

Regulatory Database	Search Distance	Property Listed?	Adj. Properties Listed?	Total Listings Within Search Distance
Fed. NPL/Proposed NPL	1-mile	No	No	0
Fed. Delisted NPL	½-mile	No	No	0
Fed. CERCLIS	½-mile	No	No	0
Fed. CERC-NFRAP	½-mile	No	Yes	1
Fed. RCRA CORRACTS	1-mile	No	No	0
Fed. RCRA TSD	½-mile	No	No	0
Fed. RCRA LQG	Site & Adj.	No	No	
Fed. RCRA SQG	Site & Adj.	No	Yes	
Fed. RCRA CESQG	Site & Adj.	No	No	
Fed. ENG Control List	Site	No		
Fed. INST Control List	Site	No		
Fed. ERNS	Site	No		
State/Tribal Hazardous Waste Site	1-mile	No	Yes	17
State/Tribal Landfill/Solid Waste	½-mile	No	No	0
State/Tribal Leaking Storage Tanks	½-mile	No	Yes	31
State/Tribal Registered Storage Tanks	Site & Adj.	Yes	No	
State/Tribal Eng. Control List	Site	No		
State/Tribal Inst. Control List	Site	No		
State/Tribal Voluntary Cleanup Sites	½-mile	No	No	0
State/Tribal Brownfields	½-mile	No	Yes	4
Supplemental Databases	Site & Adj.	Yes	Yes	

#### 4.1.1 Property Listings

The following Property listings were identified:

- RCRA-NonGen, UST, NLR and Finds Databases–Reynolds RJ Tobacco Co. Bldg. 23/23-1, Patterson Ave BTWN 4 & 5<sup>th</sup> St: No violations were reported in connection with the RCRA listing. According to the UST listing the site contained four (4) 25,000 gallon heating oil tanks installed in 1978. Three tanks were removed in 1988 and one was removed in 1993. The tanks were reported to be single walled and unregulated. All tanks listings have been

assigned a status of “permanent closed”. Considering the unregulated status and unknown prior release history, this listing is considered to be REC in connection with the Property.

#### **4.1.2 Adjoining Property Listings**

The following adjoining property listing was identified:

- CERLIS-NFRAP, RCRA NonGen, NC HSDS – Reynolds RJ Tobacco Co. Bldg. 91, Bldg 91 5<sup>th</sup> @ Patterson: This site adjoins the Property to the northeast, across the intersection of Patterson Avenue and East 5<sup>th</sup> Street. The listings indicated contamination was discovered on August 1, 1980. The site received the NFRAP designation on August 21, 1989. According to the EDR Detail Map, approximately half of the site is shaded indicating a Hazardous Substance Disposal Site. The listing is linked to the RCRA Non Gen listing as it has the same federal identification number. Building 91 was listed as being was a former Small Quantity Generator of hazardous waste. Multiple violations were report between 1984 and 1988. According to the listing all violations achieved compliance. Considering the regulatory status of NFRAP and estimated groundwater flow to the southeast, this site is not considered to be REC in connection with the Property.
- RCRA-SQG – Wake Forest Health Sciences Building 91, 575 Patterson Ave: This site adjoins the Property to the northeast, across the intersection of Patterson Avenue and East 5<sup>th</sup> Street. The listings indicated the site generates ignitable, corrosive, mercury, chloroform, acetamide, formaldehyde and acetic waste. No violations were report. Considering the lack of reported violations and recent redevelopment of the site, this site is not considered to be REC in connection with the Property.
- LUST and IMD – RJ Reynolds Building 56-2: This site adjoins the Property to the east, across Patterson Avenue. The listing indicates a release of heating oil occurred on December 28, 1993 which resulted in major soil contamination. Comments made in the LUST listing indicate the site is about to be closed out pending receipt of soil disposal records. Considering regulatory status and the estimated groundwater flow to the south and east, this site is not considered to be REC in connection with the Property.
- IMD – RJR Tobacco-4<sup>th</sup>&Vine: This site adjoins the Property to the east, across Patterson Avenue. The listing indicates groundwater contamination occurred in 1989 during RJR implemented groundwater program. Considering the estimated groundwater flow to the south and east, this site is not considered to be REC in connection with the Property.
- LAST and IMD – RJR Magnolia Parking Deck, Church Street @ 5<sup>th</sup> Street: This site adjoins the Property to the west, across North Chestnut Street. The listing indicates gasoline or diesel groundwater contamination was occurred in 2001. Considering the estimated groundwater flow to the south and east, this site is considered to be REC in connection with the Property.
- Brownfield – Airport Business Park and Gateway Southeast, 400 Patterson Avenue: This site adjoins the Property to the west, across East 4<sup>th</sup> Street. No pertinent information

regarding the listing is given. Considering the estimated groundwater flow to the south and east, this site is not considered to be REC in connection with the Property.

#### **4.1.3 ASTM Search Distance Findings**

The following is a summary of the findings of the regulatory database review with regard to sites identified as located within the ASTM specified search distance surrounding the Property. In order to keep this report informative and yet concise, Hillmann has provided a brief discussion of the listed site(s) for each database category that appears most likely to impact the Property based on distance, topography and/or case status. A copy of the full EDR Radius Map Report, including available details of all listed sites, is included in Appendix E.

Note that listings for the following databases, if identified, would be discussed above in Sections 4.1.1 and 4.1.2: Registered Storage Tanks, Federal RCRA Generators, Federal and State INST and ENG Controls, ERNS.)

**Federal NPL:** No NPL listings were identified within a one-mile radius of the Property.

**Federal Delisted NPL:** No DNPL listings were identified within a ½-mile radius of the Property.

**Federal CERCLIS:** No CERCLIS listings were identified within a ½-mile radius of the Property.

**Federal CERCLIS-NFRAP:** Other than the adjoining site described in section 4.2; no CERCLIS-NFRAP listings were identified within a ½-mile radius of the Property.

**Federal RCRA-CORRACTS:** No CORRACTS listings were identified within a one-mile radius of the Property.

**Federal RCRA-TSD:** No TSD listings were identified within a ½-mile radius of the Property.

**State/Tribal Hazardous Waste Sites:** Seventeen (17) SHWS listings were identified within a one-mile radius of the Property. The closest in proximity to the Property, Liberty Group, at 709 N. Main Street, is located approximately 1,204 feet to the northwest and up-gradient based on area topography. The SHWS case status is listed as “closed”. Considering the distance and closed status, this listing is not considered to be a recognized environmental condition in connection with the Property.

**State/Tribal Landfill/Solid Waste Disposal Sites:** No SWF/LF listings were identified within a ½-mile radius of the Property.

**State/Tribal leaking Storage Tanks:** Thirty-one (31) LTANKS listings were identified within a ½-mile radius of the Property. The closest non-adjoining site at a higher elevation and active status is listed as Winston-Salem City Hall, 101 N. Main Street, located approximately 1,473 feet to the south-southwest. The site was also listed on the IMD database. The listings indicated that a release of gasoline during removal of nine (9)-550-gallon storage tanks were reported on

January 16, 2002. Based on the distance, this site is not considered to be REC in connection with the Property.

**State/Tribal Voluntary Cleanup Sites:** No VCP listings were identified within a ½-mile radius of the Property.

**State/Tribal Brownfields:** Four (4) BROWNFIELDS listings were identified within a ½-mile radius of the Property. The closest non-adjointing site in proximity to the Property is identified as 747 Chestnut Street, located approximately 1,527 feet to the north and at a higher elevation relative to Property. No pertinent details were given. Considering distance, this site is not considered to be a REC in connection with the Property.

Review of the sites identified within the ASTM search parameters did not identify any nearby or surrounding area sites that are considered to be a REC in connection with the Property, unless as discussed otherwise previously in this section.

## 4.2 Additional Environmental Record Sources

### 4.2.1 Supplemental Database Listings

Hillmann reviewed the EDR Radius Map report for listings on supplemental databases that were searched in addition to the Standard Environmental Record Sources. Any property or adjoining property listings on such databases, if identified, would be discussed in Section 4.1.1 and 4.1.2. None of the other supplemental database listings identified by the EDR Radius Map report are considered to be a REC in connection with the Property.

### 4.2.2 Local Agency & Internet Research

Hillmann performed a search of available local and municipal agencies for pertinent information pertaining to the Property, particularly with regard to potential environmental concerns such as petroleum storage tanks, storage and usage of hazardous substances and petroleum products, and/or known or suspected environmental contamination. Hillmann also conducted a cursory internet search of the Property address for information indicative of a REC. The following table summarizes the findings of the research:

Source:	Inquiry Made?	Type:	Outcome:
North Carolina Department of Environmental and Natural Resources	Yes	FOI Request	Response not received prior to report completion.
Forsyth County Department of Public Health	Yes	FOI Request	Response not received prior to report completion.
Winston-Salem Fire Department	Yes	FOI Request	Response not received prior to report completion.
USEPA Envirofacts search <a href="http://www.epa.gov/enviro/index.html">http://www.epa.gov/enviro/index.html</a>	Yes	Internet	The Property address was searched. The Property was listed on the RCRA database as Handler ID: NCD986191609. The Handler ID is associated with land disposal, incinerator, boiler and/or industrial furnace,

			storage and treatment activities.
www.google.com	Yes	Internet	The Property address was searched. No information indicative of a REC was identified.
Other:	NA		

### 4.3 Physical Setting Sources

#### 4.3.1 USGS 7.5 Minute Topographic Map

The USGS 7.5 minute series topographic maps covering the Property (Winston-Salem East, NC and Winston-Salem West 2001 Quadrangles) were reviewed. The maps indicated an approximate elevation at the Property of 890 to 910 feet above mean sea level. The topography indicated by the map appeared to be gently sloping downward to the east. The closest down gradient water body is the unnamed tributary to Salem Creek located approximately 1,100 feet to the southeast.

#### 4.3.2 Soils

Based on USDA Soil Conservation Service (SCS) data summarized by the EDR Geocheck-Physical Setting Source Addendum, the soil type at the Property is classified as “Percolet”. The Pacolet series consists of very deep, well drained, moderately permeable soils that formed in residuum weathered mostly from felsic igneous and metamorphic rocks of the Piedmont uplands. Slopes commonly are 15 to 25 percent but range from 2 to 60 percent.

#### 4.3.3 Geology

Based on geologic data summarized by the EDR Geocheck - Physical Setting Source Addendum, the geologic formation in the vicinity of the Property is described as a stratified sequence of the Paleozoic Era, Pennsylvanian System, Lower Felsic paragneiss and schist Series.

#### 4.3.4 Hydrology

According to the 2006 Phase II Site Assessment by ERM the groundwater flows towards the south and east. No other site specific hydro-geologic data was available for the Property.

#### 4.4 Historical Use – Property and Adjoining Properties

Hillmann has conducted research in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the Property. Standard historical sources have been sought in an attempt to document the past uses of the Property as far back as it can be shown that the Property contained structures; or from the time the Property was first used for residential, agricultural, commercial, industrial or governmental purposes.

##### 4.4.1 Fire Insurance Maps

Hillmann obtained a Certified Sanborn Map Report from EDR in order to research published historic fire insurance maps for the Property and surrounding area. The following is a summary of site use information interpreted from a review of the report:

YEAR(S)	DESCRIPTION	
1885	<b>Property:</b>	A large 5-story building labeled Bailey Brothers Tobacco Factory is located on the center of the site. Activities within the Bailey Brothers building comprises of tobacco rolling, prizing, shipping, and leaf storage. To the south a smaller 4-story building labeled H.H. Reynolds Tobacco Factory resides. Activities within the Reynolds building comprises of tobacco rolling, prizing, casing and storage. A tank of unknown content is located between the buildings. A building identified as guano house resides on the southwest portion serviced by a railroad spur that extends from the south. An unidentified building appears to the west of the guano house. The remaining structures comprise of four tenements located on the north and southeast and two shanties to the north of the tobacco factories. Coverage on the extreme northern end of the site is not depicted.
	<b>Adjacent Properties:</b>	The area to the south and east appears to be a mix of warehouses and residential properties. The area to the north and west is not shown.
1890	<b>Property:</b>	A three-story storage building is present to the south of J.K. Bailey and Co. Tobacco Factory, formerly named H.H. Reynolds Tobacco Factory. An additional tenement building appears to the southeast of J.K. Bailey. The unidentified building on the southwest corner of the Property appears to be razed. The remaining structures are depicted as described in the previous Sanborn Map.
	<b>Adjacent Properties:</b>	The adjoining properties appear as a mix of warehouses and residential properties. A railroad tracks appears to the west along the Property boundary.
1895	<b>Property:</b>	Sixteen tenement building appear on the north portion of the Property. In the center portion of the Property Bailey Brothers Tobacco Factory is shown in addition to two tobacco storage structures to the east and south of the factory. A railroad spur extends to the factory. The building identified as J.K. Bailey and Co. Tobacco Factory on the previous Sanborn map is labels as a tobacco storage facility. Brown Brothers Company tobacco storage appears on the south end of the Property.
	<b>Adjacent Properties:</b>	To the west a large structure labeled Brown Brothers Company tobacco factory resides. The remaining adjoining properties appear as a mix of residential and warehouse properties.
1900	<b>Property:</b>	Dwellings appear on the north portion of the Property. In the center portion of the Property Bailey Brothers Tobacco Factory is shown in addition to two tobacco storage structures to the east and south of the factory. The railroad spur now extends to the factory. Brown Brothers Company tobacco storage appears to have expanded on the south end of the Property.
	<b>Adjacent Properties:</b>	To the west a large complex labeled R.J. Reynolds Tobacco Co. factory resides. The remaining adjoining properties appear as a mix of residential, retail and warehouse properties.

1907	<b>Property:</b>	R.J Reynolds Company tobacco storage facility appears on the northwest corner of the Property. Tenements previously depicted on the northern portion of the Property have been razed. The former Brown Brothers Company facility on the southeastern portion of the Property is identified as Carolina Cold Storage and Ice Company. The former guano house is now labeled as a poultry powder manufacturer. Several smaller storage buildings appear as well as dwellings where tenements previous resided on the southeast portion of the Property.
	<b>Adjacent Properties:</b>	To the west R.J. Reynolds Tobacco Co has expanded covering the entire block. Peoples Fuel and Ice Co., and Vaughn and Co. wholesale grocery appears to the south. The remaining adjoining properties appear as a mix of residential, retail and warehouse properties.
1912	<b>Property:</b>	The majority of the Property appears developed. Large buildings are shown on the north and east labeled storage of tobacco in hogsheads. Coal bins are shown of the central portion of the site adjacent the railroad. Two boilers and an oil house are shown on the central portion of the site. Two boilers, a cooling tower and an ammonia tank are shown in the Carolina Cold Storage and Ice Company building. An auto shed appears on the western portion along Chestnut street.
	<b>Adjacent Properties:</b>	The adjoining properties remain unchanged from the previous year Sanborn map.
1917	<b>Property:</b>	The tobacco storage building on the northwestern portion of the site is labeled as containing 200 barrels of alcohol. The R. J. Reynolds Tobacco Company building on the northwestern portion of the subject site has labels indicating the presence of softening machinery within the facility. Coal bins are shown on the central portion of the site near the railroad. Two boilers and an oil house are shown on the central portion of the site. The Carolina Cold Storage and Ice Company buildings on the southeastern portion of the site are no longer present and the area is shown as vacant. What appears to be the current structure present on the southwestern portion of the subject site is labeled as Morris & Co. Wholesale Meats, with railroad spur along the west side of the building.
	<b>Adjacent Properties:</b>	R. J. Reynolds Tobacco Company Plant No. 8 occupies the block adjacent to the west of the site, and shows five boilers and a generator in the building along Chestnut Street. Tobacco storage buildings associated with R.J. Reynolds Tobacco Co Building No. 33 and F.M. Bohannon Tobacco Factory No. 50 are shown to the north. The Peoples Fuel and Ice Co., Swift and Co. Coffee Roaster and Vaughn and Co. wholesale grocery appear to the south. The remaining adjoining properties appear as a mix of residential, retail and warehouse properties.
1950	<b>Property:</b>	The central portion of the subject site is shown as the R. J. Reynolds Bailey Plant. The northern portion of the site is labeled as part of R. J. Reynolds Tobacco Plant No. 8. The railroad spur observed in earlier Sanborn maps is now shown to extend farther north towards the No. 8 Plant. The central portion of the subject site is occupied by several storage structures and two coal silos. What appear to be the original building 23-1 constructed in 1925-26 and current Building 23-2 constructed in 1948-50 are shown on the central eastern portion of the site, and contain boilers and a turbine room. The western portion of the original Building 23-1 has since been demolished. Three smokestacks and a cooling tower are shown on the eastern portion of the site. To the north of the cooling tower a small building is labeled Oil House. On the southeast corner of the site is a small structure labeled as a service pump house. On the south center portion of the Property an ash washing area is present. The former Morris & Co. Wholesale Meats building near the southwest corner of the site is now labeled as the Armour & Co. Wholesale Meats. Four small storage buildings are shown along the western side of the site, one of which is labeled as paint storage.
	<b>Adjacent Properties:</b>	R. J. Reynolds Tobacco Company Plant No. 8 occupies the block adjacent to the west of the site. Tobacco storage buildings associated with R.J. Reynolds Tobacco Co Building No. 33 and F.M. Bohannon Tobacco Factory are shown to the north. The remaining adjoining properties appear as retail properties. Two gasoline stations, each with two tanks are present to the northeast, one located north of East 4 <sup>th</sup> Street and one to the south of East 4 <sup>th</sup> Street.
1957	<b>Property:</b>	The site is labeled Reynolds Tobacco Co Plant No. 23. Current building 23-12 on the southwest side of the Property is labeled Air Conditioning Bldg., with a reported construction date of 1956. One large tank and three smaller tanks are shown on the southeast corner of the Property.

	<b>Adjacent Properties:</b>	R. J. Reynolds Tobacco Company Plant No. 8 occupies the block adjacent to the west of the site. R.J. Reynolds Tobacco Co Building No. 33 and F.M. Bohannon Tobacco Factory are shown to the north. The remaining adjoining properties appear retail properties. Two gasoline stations are present to the northeast, one located north of East 4 <sup>th</sup> Street and one to the south of East 4 <sup>th</sup> Street.
1963	<b>Property:</b>	Former Armour & Co. Wholesale Meats is identified as Building 23-13.
	<b>Adjacent Properties:</b>	R. J. Reynolds Tobacco Company Plant No. 8 occupies the block adjacent to the west of the site. R.J. Reynolds Tobacco Co Building No. 33 and F.M. Bohannon Tobacco Factory are shown to the north. The remaining adjoining properties appear as retail properties. One gasoline stations is present to the northeast to the south of East 4 <sup>th</sup> Street. The gasoline station previously depicted to north of East 4 <sup>th</sup> Street appears to have been razed.
1969	<b>Property:</b>	Building 23-2 Extension is present with build date of 1964. A large oil tank and several smaller tanks are depicted on the north portion along East 5 <sup>th</sup> Street. Former large buildings at the northeast and northwest corners have been razed making way for 23-1 Extension. Several storage buildings along the west side have been razed. The cooling towers along the east side have been expanded.
	<b>Adjacent Properties:</b>	R. J. Reynolds Tobacco Company Plant No. 8 occupies the block adjacent to the west of the site. R.J. Reynolds Tobacco Co parking lot and Bohannon No. 1 storage building are shown to the north. A transfer area is shown to the east. The remaining adjoining properties appear as retail properties. One gasoline stations is present to the northeast to the south of East 4 <sup>th</sup> Street.

#### 4.4.2 City Directories

Hillman obtained an EDR City Directory Abstract report to obtain data of historic city directory listings for the Property. The following is a generalized summary of the findings of City Directory Research:

YEAR(S)	SUMMARY	
1964 through 1994	<b>Property:</b>	The R.J. Reynolds Tobacco Factory (power plant) was listed as 511 Patterson Ave.
	<b>Adjacent Properties:</b>	Various R.J. Reynolds buildings as well as stores, businesses and private residential occupants were listed.
1999 through 2013	<b>Property:</b>	No listings were noted in connection with the Property.
	<b>Adjacent Properties:</b>	Various stores, businesses and private residential occupants were listed.

#### 4.4.3 Historical Topographic Map Review

Hillmann obtained and reviewed an “EDR Historical Topographic Map Report” from EDR containing historic aerial photography of the Property and adjoining properties. The following interpretation of land usage was made by review of the maps:

YEAR(S)	DESCRIPTION	
1950, 1971, 1987	<b>Property</b>	The Property is depicted with one large industrial building fronting East 4 <sup>th</sup> and 5 <sup>th</sup> Streets and Patterson Avenue. A railroad spur runs along the west side of the building.
	<b>Adjacent Properties</b>	An industrial building is depicted to the west. The remaining adjoining properties are shaded to denote urban development. Rail tracks border the western boundary.
1994	<b>Property</b>	The Property is depicted with one large industrial building fronting East 4 <sup>th</sup> and 5 <sup>th</sup> Streets and Patterson Avenue. A railroad spur runs along the west side of the building.

	<b>Adjacent Properties</b>	An industrial building is no longer depicted to the west. The remaining adjoining properties are shaded to denote urban development. Rail tracks border the western boundary.
1997	<b>Property</b>	The Property is shaded to denote urban development
	<b>Adjacent Properties</b>	The adjoining properties are shaded to denote urban development. Rail tracks border the western boundary.

#### 4.4.4 Aerial Photograph Review

Hillmann obtained and reviewed an “EDR Aerial Photo Decade Package Report” from EDR containing historic aerial photography of the Property and adjoining properties. The following interpretation of land usage was made by review of the aerial photographs:

<b>YEAR(S)</b>	<b>DESCRIPTION OF CONDITIONS DEPICTED BY MAPS</b>	
1948	<b>Property:</b>	Buildings 23-1 and 23-2, 23-13 area depicted. Several large buildings occupy the north portion. Smaller buildings occupy the west and southeast portions of the Property. A plume of smoke is depicted coming out of the center-east located smokestack.
	<b>Adjoining Properties:</b>	The adjoining properties are developed in an urban setting primarily developed with large buildings (RJ Reynolds) or other industrial facilities.
1971	<b>Property:</b>	Two smoke stacks are depicted as well as the Building 23-2 Extension which replaced several larger building on the north portion of the Property. Due to poor image quality the remaining site could not be reviewed accurately.
	<b>Adjoining Properties:</b>	The adjoining properties are developed in an urban setting primarily developed with large buildings (RJ Reynolds).
1977	<b>Property:</b>	Due to poor image quality the site could not be accurately reviewed.
	<b>Adjoining Properties:</b>	Due to poor image quality the adjoining properties could not be accurately reviewed other than the area comprises of a dense urban area..
1982	<b>Property:</b>	The smokestacks and main buildings (23-1, 23-2, 23-2 Extension) are depicted.
	<b>Adjoining Properties:</b>	The adjoining properties are developed in an urban setting primarily developed with large buildings (RJ Reynolds) and parking lots.
1993	<b>Property:</b>	Smoke stacks and several cooling towers appear on the southern portion of the Property. Buildings 23-1, 23-2 and 23-2 Extension, 23-12, and 23-13 appear in their current configuration. A large building is situated between building 23-1 and 23-13.
	<b>Adjoining Properties:</b>	To the north appears a parking lot and warehouse, to the south appears a mixed use building and railroad tracks. A parking garage appears to the west, and a smaller industrial building appears to the east. A large industrial facility appears to the northeast.
2006, 2010	<b>Property:</b>	Smoke stacks and several cooling towers appear on the southern portion of the Property. Buildings 23-1, 23-2 and 23-2 Extension, 23-12, and 23-13 appear their current configuration. A large building is situated between building 23-1 and 23-13. Several large above ground storage tanks are present on the north end and southeast areas of the Property.
	<b>Adjoining Properties:</b>	To the north appears a parking lot, to the south appears a commercial building and open area. A parking garage appears to the west, smaller industrial buildings and a commercial building appears to the east. A large industrial facility appears to the northeast.
2012	<b>Property:</b>	Smoke stacks, and several cooling towers appear on the southern portion of the Property. Buildings 23-1, 23-2 and 23-2 Extension, 23-12, and 23-13 appear their current configuration. Several large above ground storage tanks appear to have been removed as well as the cooling towers shown in prior year aerial photographs.

	<b>Adjoining Properties:</b>	To the north appears a parking lot, to the south appears a commercial building and open area. A parking garage appears to the west and a commercial building appears to the east. A large industrial facility appears to the northeast.
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*Due to poor image quality or lack of coverage the 1998, 2002 and 2005 aerial maps were not reviewed.*

#### **4.4.5 Petroleum/Natural Gas Well Review**

Hillmann reviewed historical record sources for evidence of historic petroleum and/or natural gas wells at the Property. No record of any historical petroleum/natural gas wells at the Property was identified.

Hillmann reviewed historical record sources for evidence of historic petroleum and/or natural gas wells at the Property.

#### **4.4.6 Historical Records Data Failure**

Historic land use data prior to 1885 was not obtained during assessment. The date of the first developed use of the Property was not determined by this assessment. The earliest usage of the Property was determined to be two industrial tobacco factories, guano house, tenements, and shanties. It is Hillmann's opinion that further investigation of this data gap would not result in any significant changes to the findings of this assessment.

#### **4.4.7 Summary of Historic Use Research**

The existing building 23-1 was built in 1925-26 operated as a turbine and boiler house for the on-site power plant. Building 23-2 was constructed in 1948-50 and in 1964 the building expanded to the north. Both buildings house boilers and turbines for power generation. Building 23-12 was constructed in 1956 and was utilized as chiller water production. Prior to the development of the current buildings that reside on-site the Property was utilized as several tobacco manufacturing factories (R.J. Reynolds and Bailey Brothers) with buildings conducting manufacturing, warehousing, storage and drying types of activities. A cold storage and ice company occupied the southeast portion of the Property from the 1900s to late 1910s succeeding another tobacco factory, Brown Brothers. Building 23-13 was constructed in circa 1917 and utilized as a wholesale meat company until 1963 when the building was purchased by R.J. Reynolds and utilized as storage.

Adjoining properties appear to have been historically occupied by a mix of tobacco factories, commercial businesses, and residential since the late 19<sup>th</sup> century. The adjoining properties to the northeast were occupied by several automotive service stations from approximately the 1950s to the 1960s.

## **5.0 SITE RECONNAISSANCE**

### **5.1 Methodology and Limiting Conditions**

The site reconnaissance consisted of visual and/or physical observations of the Property and improvements, adjoining properties as viewed from the Property boundaries and the surrounding area based on visual observations from adjacent public thoroughfares. Building exteriors were observed at ground level, unless otherwise indicated. Where applicable, Hillmann accessed and observed representative areas of building interiors to the extent they were made safely accessible with the cooperation of the site escort.

The site reconnaissance was conducted by Mr. Larry Rockefeller on April 2, 2014. Weather conditions at the time of the assessment included a temperature of approximately 75 degrees F and clear skies. Hillmann was escorted by Kurt Hemrick of WFIQ Holding II, LLC, formerly PTRP.

#### **5.1.1 Significant Inaccessible Areas**

Hillmann was unable to access the following areas of the Property:

- The hydraulic elevator pit in building 23-13.
- The interior of the onsite smoke stacks and former coal storage silos.

### **5.2 General Site Setting**

#### **5.2.1 Site and Vicinity Characteristics**

The Property consists of a nearly rectangular shaped 2.96-acre parcel bordered on the north side East Fourth Street, west side of Patterson Avenue, east side of North Church Street and south side of East Fifth Street. The Property is located in an urban developed area characterized by a mix of redeveloped industrial buildings, and residential buildings; and various retail stores and businesses. The terrain of the Property appeared to be gently sloping from the west to east. No natural surface water bodies were noted at the Property. It is reported that a stream runs along the north and east sides of the Property within a large underground culvert. Five building structures are present at the Property.

#### **5.2.2 Topographic Characteristics**

The terrain of the Property appeared to be gently to moderately sloping from the west to east. No natural surface water bodies were noted at the Property.

#### **5.2.3 General Description of Structures**

The Property is improved with five buildings which are identified as buildings 23-1, 23-2, 23-2 Extension, 23-12 and 23-13 of the Piedmont Triad Research Park (PTRP).

The Property is improved with five buildings. Building 23-1 constructed in 1926-27 is located on the southeast portion of the Property is a two-story brick building consisting of approximately 10,000-ft<sup>2</sup> of space. Building 23-2 constructed in 1948-50 and 23-2 Extension constructed in 1964, which are large multi-story brick buildings, lie to the north of building 23-1 and south of East 5<sup>th</sup> Street. Building 23-13 constructed in circa 1917 is a three story brick building that resides on the southwest corner fronting East 4<sup>th</sup> Street and North Chestnut Street. To the north of building 23-13 lies building 23-12 constructed in 1956. Building 23-12 is a two-story brick building. Buildings 23-2 and 23-2 Extension are conjoined and consists of approximately 88,000-ft<sup>2</sup> of space. Buildings 23-12 and 23-13 are also conjoined and consist of approximately 22,000-ft<sup>2</sup> of space. Buildings 23-1, 23-2, and 23-2 Extension formerly were utilized in on-site power and steam generation. Building 23-12 formerly housed chiller equipment that serviced nearby R.J. Reynolds buildings as well as the site's emergency generator. Building 23-13 was formerly used for general storage and as office area. Two smokestacks, two coal silos and a railroad spur were also present. The remaining site is covered with concrete or gravel. Extensive on-site demolition occurred in 2012 removing multiple former on-site buildings and structures.

#### **5.2.4 Sources of Heating and Cooling**

Buildings 23-1, 23-2 and 23 Extension are not currently heated or cooled.

Building 23-12 and 23-13 is heated by electric ceiling mounted heaters. No active cooling system within the buildings was observed.

#### **5.2.5 Potable Water Source/Sewage Disposal System**

Potable water and sewer services are provided via municipal utility services.

#### **5.2.6 Current Use(s) of the Property**

The existing building consists of five vacant former RJ Reynolds buildings. Buildings 23-1, 23-2, and 23-2 Extension were utilized as power and steam generation for the RJ Reynolds manufacturing complex. Building 23-12 was utilized as a chiller plant and Building 23-13 was utilized as a storage building.

#### **5.2.7 Past Use(s) of the Property**

According to Mr. Hemrick the Property has been utilized as steam, chiller and power plant for RJ Reynolds Cigarette Manufacturing since the 1920s. No other obvious indication of past Property usage likely to have involved the use, treatment, storage, disposal or generation of hazardous substances or petroleum products was observed at the time of the site visit. Please refer to Section 4.4 for findings of historical site use research.

#### **5.2.8 Current Use(s) of the Adjoining Properties**

The following describes adjacent and abutting properties:

Dir	Street Address	Description
N	270 East Sixth Street	Commercial Parking Lot
NE	575 North Patterson Avenue	Wake Forest Biotech Place
E	410 South Fifth Street and 445 North Paterson Avenue	Community Park (under development)
W	445 North Chestnut Street	RJ Reynolds Parking Garage
S	218-282 East Fourth Street	Commercial Retail

The Property is a portion of the Piedmont Triad Research Park (PTRP) and is identified as a North Carolina, Division of Waste Management Brownfields Site. This agreement identifies the Brownfields site as an approximate 49.02 acre property located in the areas south of Martin Luther King Jr. Drive, north of Third Street, west of U. S. Highway 52 and east of North Main Street. The Brownfields site, with the exception of approximately 0.12 acres has been owned by RJ Reynolds in the past. The Property buildings are part of the Brownfields site. A description of the agreement is included in Section 3.1 of this report.

### 5.2.9 Past Use(s) of the Adjoining Properties

No indication of past uses of the adjoining properties was noted at the time of the site visit. Please refer to Section 4.4 for the findings of historical site use research.

### 5.2.10 Current/Past Uses of Surrounding Area

The Property is located in an urban area of the City of Winston-Salem, North Carolina. The vicinity of the Property consists of a developed urban area with a mix of biomedical institutions, retail stores, eateries and multi-family residential properties. No indications of past Property uses that differ substantially from current conditions were observed at the time of the site visit.

## 5.3 Interior & Exterior Observations

### 5.3.1 Storage/Usage of Hazardous Substances and Petroleum Products

Pooled diesel fuel and associated strong petroleum odor was observed on the roof and within a small storage room located in the southwest corner of the basement of Building 23-2. In addition diesel appeared to be migrating down the east side of the storage room wall from the roof. A floor drain was located in the center of pooled diesel within the storage room in addition a floor trench was in close proximity to the east storage room wall. According to Mr. Hemrick an above ground day tank existed on the roof of the storage building. The tank was reported removed in 2012 during the limited site demolition.

Standing hydraulic fluid was observed within secondary containment below the hydraulic elevator equipment in Building 23-13. No staining was observed outside of the secondary containment. The associated elevator car was inoperable access to the elevator pit was not feasible; therefore the possibility of additional hydraulic fluid release exists.

No other significant storage/usage of hazardous substances and petroleum products was observed.

#### **5.3.2 Drums**

No drums were observed at the Property at the time of the site visit.

#### **5.3.3 Other Hazardous Substances/Petroleum Products**

No other containers of hazardous substances or petroleum products were noted on the Property at the time of the site visit.

#### **5.3.4 Unidentified Substance Containers**

No unidentified containers suspected of containing hazardous substances or petroleum products were noted on the Property at the time of the site visit.

#### **5.3.5 Storage Tanks**

No evidence of any underground storage tank (UST) or above ground storage tank (AST) systems were identified on the subject Property at the time of the site visit.

It is documented that above ground storage tanks historically existed on the Property. According to a prior report issued by ERM in December 2011 ten (10) large tanks were removed from the site in 2011. The tanks ranged in size from 5,000 to 80,000 gallons. Seven tanks contained #2 fuel oil and the remaining tanks held sulfuric acid, sodium hydroxide, water (steam condensate) and demineralization waste water. During removal no releases were documented by ERM; stained soil was observed in the proximity of #2 fuel oil tanks on the southeast corner of the Property. In addition four (4) 25,000-gallon USTs were removed from the site according to the database review. Other than what is discussed in Section 4, no additional record of the historic USTs was found during the records review portion of this assessment.

#### **5.3.6 Polychlorinated Biphenyls (PCBs)**

Standing hydraulic fluid was observed within secondary containment below the hydraulic elevator equipment in Building 23-13. No staining was observed outside of the secondary containment. The associated elevator car was inoperable access to the elevator pit was not feasible; therefore the possibility of additional hydraulic fluid release exists.

One pad mounted transformer was observed on the southeast corner of the Property. According to Mr. Hemrick the transformer was installed following demolition activities in 2012.

No other suspected PCB containing electrical or hydraulic equipment was identified.

#### **5.3.7 Odors**

A strong diesel odor was observed in the southwest corner of the basement of Building 23-2 and described in detail in Section 5.3.1.

No other strong, unusual or pungent odors were noted on the Property.

### **5.3.8 Pools of Liquid**

Pooled diesel fuel was observed in the southwest corner of the basement of Building 23-2 and describe in detail in Section 5.3.1.

No other pools of liquid were noted at the Property.

### **5.3.9 Interior Stains or Corrosion**

*DeMinimus* stains were observed within Building 23-2 and 23-2 Extension. The stains appeared to be from historical use of the site. No stains were in close proximity to floor drains.

No other interior stains or corrosion were noted at the Property.

### **5.3.10 Interior Drains/Sumps**

Floor drains and trenches were observed throughout Building 23-2 and 23-2 Extension. According to Mr. Hemrick all interior drains are routed to the municipal sewer system. Pooled diesel, detailed in Section 5.3.1, was observed in the vicinity of floor drains and trenches in the basement of building 23.2.

No other floor drains or sump pits were noted at the Property other than for storm water or sewage management.

### **5.3.11 Exterior Pits/Ponds/Lagoons**

No evidence of exterior pits, ponds or lagoons was identified on the Property in connection with waste treatment or disposal.

### **5.3.12 Stained Soil, Pavement/Stressed Vegetation**

No evidence of stained soils or stressed vegetation was identified on the Property.

### **5.3.13 On-Site Solid Waste Dumping/Fill Material**

No evidence of on-site solid waste dumping was noted at the Property.

### **5.3.14 Wastewater**

Sanitary sewage generated on-site is discharged into the Winston-Salem sewer system. According to the 2008 Phase I report conducted by ERM an unnamed stream runs through a large culvert along the northern and eastern sides of Property. Twenty-one (21) discharge points to the culvert were reported. The on-site discharge points originate in the coal seepage area, waster mineralization tank, various roofs, floor drains from the boiler room, turbine room, air

compressors, and ash pit and cooling tower overflow. All but two discharge points have been re-routed to the municipal sewer system. The discharge points that remain routed to the culvert include the catch basin next to the former demineralization AST and catch basin located between Building 23-1 and 23-2. No other waste discharges were noted at the Property.

#### **5.3.15 Septic Systems**

No indication of septic systems was noted on the Property.

#### **5.3.16 Wells**

According to the 2005 ERM Phase II report two temporary monitoring wells were installed on the southeastern corner of the Property. Hillmann notes the possibility that additional wells may have been installed as part of a prior subsurface environmental site investigation of the Property or adjoining properties, or for geo-technical purposes.

## 6.0 INTERVIEWS

### 6.1 Interviews with Past and Present Owners and Occupants

Type	Name; Affiliation/Title	Summary
Key Site Manager	Kurt Hemrick/PTRP	PTRP manages the Property. Mr. Hemrick was interviewed regarding the uses and conditions of the Property relative this assessment and compliance with ASTM E1527-13. Pertinent information, where obtained, is referenced in the appropriate sections of the report.
Property Owner	Not Applicable	Hillmann was not able to interview the Property owner.
Property Occupants	Not applicable	Hillmann was not able to interview individual building occupants.
Past Owners, Occupants, Operators	Not applicable	Past owners/occupants of the Property were not available for interview at the time of the assessment.
Owners/Occupants of Adjacent or Nearby Properties	Not applicable	The Property was not an abandoned property with evidence of unauthorized uses or uncontrolled access; therefore, interviews with adjacent or nearby property owners or occupants were not conducted.

### 6.2 Interviews with State and/or Local Government Officials

Written and on-line requests for environmental records of the Property from State and Local governmental agencies are detailed in Section 4.2.2.

### 6.3 Interviews with Site Specific Knowledgeable Parties

Hillmann interviewed Mr. Alan Martin and Mr. Adrian Velazquez of ERM NC, Inc. via phone on April 9, 2014. ERM NC, Inc. has been involved with the Property since the mid-2000s. ERM's has conducted Phase I and II Environmental site investigations as well as managing environment, asbestos and hazardous material clean-up abatements in building 23-1, 23-2 and 23-2 Extension during 2011-2012. Pertinent information, where obtained, is referenced in the appropriate sections of the report.

## **7.0 NON-ASTM SCOPE CONCERNS**

In accordance with our contract agreement, Hillmann has conducted cursory evaluations of the following “Non-ASTM Scope Considerations” that are outside of the requirements of the ASTM E1527-13 standard:

### **7.1 Asbestos-Containing Material (ACM)**

Considering the dates of construction of the buildings, asbestos containing materials (ACM) may be present. Suspected ACM noted during a cursory visual screening included pipe and fitting insulation within Building 23-12 and 23-13. Suspect roofing material and window glazing/caulking was observed with all structures. Additional quantities of ACM may exist in enclosed areas or areas not accessed during the assessment. Hillmann reviewed an Asbestos Survey Data Sheet issued by S&ME, Inc. related to an asbestos survey conducted in November 2007. The survey data sheet covered all current buildings and building that have been demolished since the survey was conducted. Various types and quantities of asbestos containing materials were identified including but not limited to roofing materials, pipe insulation, window glazing, mastics, etc. According to Mr. Velazquez of ERM all asbestos had been removed from Building 23-1, 23-2 and 23-2 Extension during demolition activities in 2012. Mr. Velazquez stated that asbestos abatement within buildings 23-12 and 23-13 were not included in the scope of work.

### **7.2 Lead-Based Paint**

Considering the dates of construction of the buildings, lead-based paint may be present at the Property. In general, interior painted surfaces within the space were noted to be in poor to fair condition. Hillmann was not provided any lead testing documentation.

### **7.3 Radon**

According to data compiled by the USEPA, as summarized by the EDR Radius Map Report with GeoCheck, the Property is located in an area with a moderate potential for radon concentrations that are below current USEPA action guidelines. Forsyth County is classified as a Zone 2 or ‘moderate risk’ area for radon.

### **7.4 Mold**

During the assessment, Hillmann conducted a cursory inspection of the accessed areas of the building for evidence of excessive or amplified mold growth, or for conditions favorable for mold growth. No obvious evidence of excessive or amplified mold growth, or conditions favorable for mold growth was observed on the Property during the site assessment.

### **7.5 Wetlands**

Based on a review of the EDR Radius Map Report with GeoCheck, no NWI mapped wetlands were indicated on or immediately adjacent to the Property.

It is emphasized that the absence of NWI mapped wetland areas indicated by the EDR report does not necessarily rule out the potential presence of regulated wetland areas on or immediately adjoining the Property. A wetland delineation should be sought from a qualified firm if a more comprehensive determination regarding the presence or absence of wetlands on or adjacent to the Property is warranted.

## 8.0 ENVIRONMENTAL PROFESSIONAL STATEMENT

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training and experience to assess a *property* of the nature, history and setting of the subject *property*. Hillmann has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



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Larry Rockefeller, REM  
Environmental Professional

## 9.0 REFERENCES

EDR City Directory Abstract Report, Environmental Data Resources, 2014

EDR Radius Map Report with GeoCheck, Environmental Data Resources, 2014

EDR Sanborn Map Report, Environmental Data Resources, 2014

EDR Aerial Photo Decade Package, Environmental Data Resources, 2014

EDR Historical Topographical Map Package, Environmental Data Resources, 2014

Brownfield Agreement that comprises of approximately 49.02 acres that contains the Subject Property, dated February 22<sup>nd</sup> 2010.

Above Ground Storage Tank Closures-Former Bailey Power Plant, Piedmont Triad Research Park Northern District, Winston-Salem, North Carolina; prepared by ERM NC, Inc., dated December 14, 2011.

Summary of Mercury Clean-up Services-R.J. Reynolds Tobacco Company-Bailey Power Plant, 4<sup>th</sup> Street and Patterson avenue, Winston-Salem, North Carolina; prepared by A&D Environmental, dated October 8, 2008.

Limited Phase II Screening/Sampling for Surface Contamination-RJR Bailey Power Plant, Corner Fourth Street and Patterson Avenue, Winston-Salem, North Carolina; prepared by S&ME, Inc. and dated July 7, 2008.

Phase I Environmental Site Assessment-Bailey Power Plant, Fourth Street and Patterson Avenue, Winston-Salem, North Carolina; prepared by S&ME, Inc. and dated January 14, 2008.

Brownfields Phase II Soil and Groundwater Assessment, Piedmont triad Research Park-Northern District, Winston-Salem, NC; prepared by ERM NC, PC, May, 2006.

R.J. Reynolds Properties Phase I Environmental Site Assessment, Various Downtown Parcels, Winston-Salem, NC; prepared by ERM NC, PC, October 2005.

Forsyth County On-Line GIS Website

## **10.0 APPENDICES**

Appendix A	Site Diagram / Vicinity Map
Appendix B	Site Photographs
Appendix C	Questionnaires / User Provided Information
Appendix D	Historical Records Documentation
Appendix E	Regulatory Records Documentation
Appendix F	Other Documents
Appendix G	Project Personnel Qualifications